Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

Conditional Major Draft No. F-04-001
WEYERHAEUSER COMPANY
120 WILLAMETTE WAY, BOWLING GREEN KY
June 2, 2004
BRIAN BALLARD, REVIEWER
Plant I.D. # 021-227-00086
Application Log # 56069

SOURCE DESCRIPTION:

The Weyerhaeuser North plant located in Bowling Green, KY manufactures corrugated shipping containers. The primary emission sources at this facility are due to corrugated board production, flexographic printing, the scoring, slitting and cutting of corrugated board and the gluing of manufactured joints to make corrugated containers.

CORRUGATED BOARD PRODUCTION

The primary operation in a shipping container plant is the production of sheets of corrugated board; this is done on a corrugator. This operation begins with fluting or corrugating of the center paper called medium. The medium is shipped in large rolls. The next step is the bonding of the inner and outer facings or liners to the fluted medium. These liners are also received in large rolls. Liners are made of several weights or thickness, allowing the manufacture of various qualities and weights of corrugated board. As the corrugated board leaves the corrugator, it has been slit, scored and cut to predetermined lengths. The material used to bond the medium to the liner is derived from starch.

A starch silo is located at the facility and has some insignificant PM/PM_{10} emissions. Emissions from starch mixing are included with emissions from corrugated board production. There are emissions of formaldehyde, VOC and PM/PM_{10} from the corrugator. Weyerhaeuser provided emission calculations for these pollutants to the Division. Emission factors for corrugator/starch mixing operations are in units of pounds per 1000 ft^2 of corrugated cardboard. The emission factors for corrugator/starch mixing operations are derived from stack test data at other Weyerhaeuser facilities.

Particulate emissions from the corrugator will comply with 401 KAR 59:010 based on information submitted by Weyerhaeuser and the density of cardboard that will potentially be used. Calculations demonstrating this are as follows:

Throughput = Potential Corrugator capacity (1000 ft^2) x weight of lightest paperboard
= (3,648,540 msf/yr x 85 lb/msf) / 8760 hrs/yr / 2000 lb/ton = 17.7 tons/hr
Allowable PM (lb/hr) = 3.59 x (throughput (tons/hr)) ^ 0.62
= 3.59 x (17.7) ^ 0.62 = 21.3 lb PM/hr

The potential to emit for PM from the corrugator based on information submitted by Weyerhaeuser:

Potential PM (lb/hr) = (3,648,540 msf/yr x 0.006 lbs/msf) / 8760 hrs/yr = 2.499 lbs/hr
Based on this information, it will be unnecessary to track PM emissions from the corrugator.

FINISHING DEPARTMENT

The Finishing Department consists of six rotary flexographic and folding press machines, two rotary folding press machines, a corrugated board band saw and a slitter. Emissions originate from inks, varnishes, adhesives and additives. As with the corrugator, emission factors are in units of pounds per 1000 ft^2 of corrugated board. Emissions are calculated based on the finishing department as a whole, not by each press machine.

The emissions are estimated this way because VOC emissions from the various machines vary widely depending on customer specifications, ink coverage, and paper printing properties. The most complete and accurate way to calculate emissions is by understanding the quantities and qualities of all inks used during the month in regards to vendor supplied VOC and HAP data. Weyerhaeuser will track this data in spreadsheets and use it to calculate twelve month rolling averages for VOCs and HAPs.

The potential to emit for this facility has been estimated using Weyerhaeuser's method of calculating VOC emissions, which is consistently applied across the U.S. at more than 100 corrugated box plants. To calculate potential to emit, the major assumptions are one (1.0) pound VOC per 1000 ft^2, 100% ink coverage, maximum machine rate, and 8760 hours per year of operation. Ink is applied one color at a time, not overlayed.

WASTE PAPER HANDLING SYSTEM

Waste paper is generated at the corrugator from the scoring, slitting and cutting of corrugated board. The corrugated board is also slotted and scored in the finishing department. The waste containerboard dust is sent to a waste paper cyclone that includes a baler. The bales of scrap paper are then shipped offsite for recycling. Weyerhaeuser submitted a stack test report for cyclone particulate emissions from the Bowling Green North facility.

STARCH SILO

Particulate emissions from the starch silo are based on an AP-42 factor for product transfer and conveying. The starch silo was determined to be an insignificant activity.

HISTORY

This plant was formerly owned by Willamette Industries, Inc. It was purchased by Weyerhaeuser in 2002. The plant previously operated under the guidance of permit numbers S-94-063 and O-88-064. The permit S-94-063 expired as of 07/07/99. The facility submitted a complete permit application to DAQ Permit Review on 03/02/01. The application was approximately two years and two months late. The source was determined at that time to qualify as a registered source pursuant to 401 KAR 52:070. Since Weyerhaeuser assumed ownership of this facility, the method of calculating emissions was reevaluated. The result is that the potential to emit of this facility now qualifies it as a major source. The facility has opted to take conditional major limits. Weyerhaeuser owns another containerboard plant in Warren County that is approximately eight miles from this facility. The Division has determined that the two plants shall be treated as separate sources for PSD applicability purposes.

COMMENTS:

Weyerhaeuser submitted modeling results for the Bowling Green North facility. Weyerhaeuser used EPA SCREEN3 modeling for emissions of pollutants listed on EPA's Region Nine Preliminary Remedial Goals (PRGs) for toxics exposure to Ambient Airways. Emissions from the starch mixing, corrugator and the finishing department are vented through three (3) equally sized 4.5' diameter ceiling vent fans over the corrugator and starch mixing process. In the SCREEN3 model these fans were merged into a single stack to account for the emission of toxics from the use of starches, adhesives, inks, additives and cleaners used in the manufacturing process. The modeling demonstration indicated that offsite concentrations of pollutants from Weyerhaeuser's Bowling Green (North) Plant are less than $1/10^{th}$ the maximum acceptable limits for toxics exposure.

APPLICABLE REGULATIONS:

401 KAR 63:060. List of hazardous air pollutants, petition process, lesser quantity designations, and source category list.

401 KAR 63:020 – Potentially Hazardous Matter or Toxic Substances, applies to the potentially hazardous matter and toxic substance emissions from affected facilities.

401 KAR 59:010, Particulate Matter, applies to the particulate matter emissions from affected facilities constructed on or after July 2, 1975.

Conditional Major limits will preclude applicability of 40 CFR 63, Subpart KK, National Emission Standards for Hazardous Air Pollutants for the Printing and Publishing Industry.

EMISSION AND OPERATING CAPS DESCRIPTION:

Weyerhaeuser Company has requested voluntary permit limits of less than 90.0 tons per year of volatile organic compounds (VOC), 9.0 tons per year of individual hazardous air pollutant (HAP) and 9.0 tons per year of combined HAPs.

PERIODIC RECORDKEEPING:

Boiler EP01

The permittee shall maintain source-wide monthly records of the purchase and usage of the volume of natural gas.

Corrugator/Starch Mixing EP02

1. The permittee shall maintain monthly records of the 1000 ft^2 of corrugated board produced. VOC/HAP emissions shall be calculated and recorded on a *monthly* basis. These records shall be summarized in tons per month VOC/HAP emissions; subsequently, tons of VOC/HAP emissions per rolling 12-month period shall be recorded. In addition, these records shall demonstrate compliance with VOC/HAP emission limitations listed herein for the conditional major limitations. These records, as well as purchase orders and invoices for all VOC/HAP containing materials, shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the Division upon request.

PERIODIC RECORDKEEPING (Continued)**:**

Corrugator/Starch Mixing EP02 (Continued)

2. The permittee shall maintain monthly records of the purchase and usage of the starch additives or any HAP containing material. HAP emissions shall be calculated and recorded on a *monthly* basis. These records shall be summarized in tons per month HAP emissions; subsequently, tons of HAP emissions per rolling 12-month period shall be recorded. In addition, these records shall demonstrate compliance with HAP emission limitations listed herein for the conditional major limitations. These records, as well as purchase orders and invoices for all HAP containing materials, shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the Division upon request.

Finishing Department EP03 – EP12

The permittee shall maintain monthly records of the purchase and usage of the inks, coatings, varnishes and adhesives or any VOC/HAP containing material. VOC/HAP emissions shall be calculated and recorded on a *monthly* basis. These records shall be summarized in tons per month VOC/HAP emissions; subsequently, tons of VOC/HAP emissions per rolling 12-month period shall be recorded. In addition, these records shall demonstrate compliance with VOC/HAP emission limitations listed herein for the conditional major limitations. These records, as well as purchase orders and invoices for all VOC/HAP containing materials, shall be maintained on site for a period of five years from the date the data was collected and shall be provided to the Division upon request.

Waste Paper Handling System EP13

The permittee shall maintain monthly records of the pounds of scrap paper processed by the Waste Paper Cyclone. These records shall be used to calculate a pounds/hour particulate emission rate based on a monthly average. All records and support shall be retained at the source for a period of 5 years from the date the data was collected and shall be provided to the Division upon request.

Space Heaters – Insignificant Activities

The permittee shall maintain source-wide monthly records of the purchase and usage of the volume of natural gas.

OPERATIONAL FLEXIBILITY: NA

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has not incorporated these provisions in its air quality regulations.